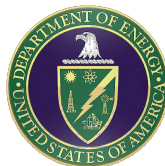


# Detector R&D for an Electron Ion Collider

**18<sup>th</sup> Advisory Committee Meeting**  
**BNL, January 30-31, 2020**

*Thomas Ullrich (BNL/Yale)*  
January 30, 2020



# EIC Status (I)

- Secretary Brouillette approved Critical Decision-0, “Approve Mission Need,” for the EIC on December 19, 2019.
- January 19, 2020 DoE announces CD-0 and that BNL will be the host of the EIC



[Home](#) » U.S. Department of Energy Selects Brookhaven National Laboratory to Host Major New Nuclear Physics Facility

**WASHINGTON, D.C.** – Today, the **U.S. Department of Energy (DOE)** announced the selection of Brookhaven National Laboratory in Upton, NY, as the site for a planned major new nuclear physics research facility.

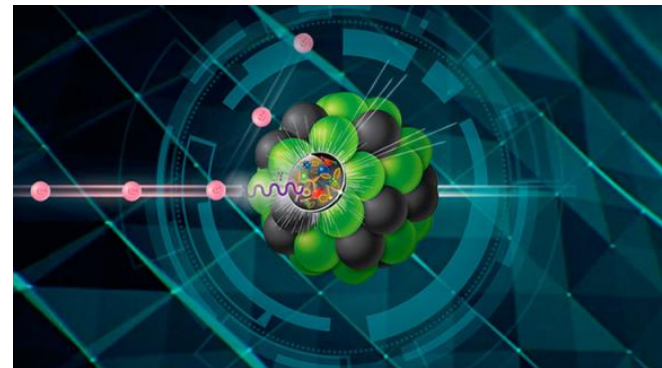
The Electron Ion Collider (EIC), to be designed and constructed over ten years at an estimated cost between \$1.6 and \$2.6 billion, will

A communication resource from the world's particle physics laboratories

## Department of Energy Selects Site for Electron-Ion Collider

10 January 2020 - Brookhaven National Laboratory

*New facility to be located at Brookhaven Lab will allow scientists from across the nation and around the globe to peer inside protons and atomic nuclei to reveal secrets of the strongest force in nature*



UPTON, NY— Yesterday, the U.S. Department of Energy (DOE) named Brookhaven National Laboratory on Long Island in New York as the site for building an Electron-Ion Collider (<https://www.bnl.gov/eic/>) (EIC), a one-of-a-kind nuclear physics research facility. This

# EIC Status (I)

- Secretary Brouillette approved Critical Decision-0 “Approve Mission”
- January 2020: DOE approved the host site

It is clear that these events will impact the current Detector R&D program.

I am aware that you have many questions but many things come together right now and there are few concrete answers.

Discussion session at the end of the afternoon session to hear your concerns and questions including some prospects for the near future.



U.S. Department of Energy  
Brookhaven National Laboratory  
Host

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# EIC Status (II)

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**EICUG started a large community wide effort, the *Yellow Report Initiative***

## **Purpose**

- Advance state of documented physics studies and **detector concepts in preparation for the EIC**.
- Provide the basis for further development of concepts for experimental equipment best suited to the EIC science needs, including complementarity of the two detectors
- Input towards future Technical Design Reports (TDRs) of the experimental equipment.
- Expect that community engagement, based on common interest, naturally evolves into proto-collaboration formation
- Results to be summarized in “Yellow Report”

# EIC Status (III)

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- Two working groups
  - ▶ Physics with 5 sub-groups to define physics requirements
  - ▶ Detector working group with 9 sub-groups to work on detector concepts
- Effort should conclude January 2021
- All working groups and conveners in place
  - ▶ Excellent participation, especially from universities, great community effort
- Four workshops spread over 2020
  - ▶ March 19-21, 2020, Temple University, Philadelphia
  - ▶ May 22-24, 2020, U. of Pavia, Pavia , Italy
  - ▶ September 17-19, 2020, CUA, Washington D.C.
  - ▶ November 19-21, 2020, UCB – Berkeley, CA

# EIC Status (III)

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- Two working groups
  - ▶ Physics with 5 sub-groups to define physics requirements
  - ▶ Detector design and detector R&D
- Effort shared
- All working groups encouraged to participate in this effort.
  - ▶ Participate in the meetings if you can and offer your expertise and know-how.
  - ▶ See <http://www.eicug.org> → Yellow Reports, great
- Four workshops spread over 2020
  - ▶ March 19-21, 2020, Temple University, Philadelphia
  - ▶ May 22-24, 2020, U. of Pavia, Pavia, Italy
  - ▶ September 17-19, 2020, CUA, Washington D.C.
  - ▶ November 19-21, 2020, UCB – Berkeley, CA

# FY2020 Funding Period

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Green = consortia

- 11 Projects are funded in FY20
  - ▶ eRD1 - Calorimeter consortium (Glenn)
  - ▶ eRD6 - Tracking consortium (Marcel)
  - ▶ eRD14 - PID consortium (Peter)
  - ▶ eRD16 - Fwd Silicon tracking (Carl)
  - ▶ eRD17 - Simulations/BEAGLE (Peter)
  - ▶ eRD18 - Central Si tracking (Carl)
  - ▶ eRD20 - Software consortium (Marcel)
  - ▶ eRD21 - Machine background studies (Glenn)
  - ▶ eRD22 - GEM TRD (Jerry -> Peter?)
  - ▶ eRD23 - Streaming Readout (Rick)
  - ▶ eRD24 - Roman Pots (Rick)

# EIC R&D Advisory Committee

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## Standing Advisory Committee:

Marcel Demarteau\* (ORNL)

Carl Haber (LBNL)

Peter Krizan (Ljubljana)

Ian Shipsey (Purdue)

Rick Van Berg (UPenn)

Jerry Va'vra (SLAC)

Glenn Young (JLab)

\*chair



Please use coffee breaks for informal discussion with committee members. Pls & speakers were invited to join working dinner tonight.

Unfortunately Ian and Jerry could not make it this time



**Thursday, January 30, 2020**

**08:00 Committee: Breakfast and Executive Session (Physics Department, bldg. 510, room 2-160)**

**Physics Department (bldg. 510), Large Seminar Room**

	<b>Title</b>	<b>Speaker (Time)</b>	<b>Slides</b>
<b>08:50</b>	<b>Welcome and Overview</b>	<b>Thomas Ullrich (10)</b>	
<b>09:00</b>	<b>eRD6: Progress Report - Tracking</b>	<b>Gnanvo, Kondo (40+10)</b>	
<b>09:50</b>	<b>eRD22: Progress Report - GEM Based TRD</b>	<b>Yulia Furletova (20+10)</b>	
<b>10:20</b>	<b>Coffee Break</b>		
<b>10:45</b>	<b>eRD16: Progress Report - Fw. Si Tracking</b>	<b>Ernst Sichtermann (20+10)</b>	
<b>11:15</b>	<b>eRD18: Progress Report - Central Si Tracking</b>	<b>Laura Gonella (20+10)</b>	
<b>11:45</b>	<b>Lunch Break</b>		
<b>13:35</b>	<b>eRD14: Progress Report - PID Consortium</b>	<b>Pawel Nadel-Turonski (40+10)</b>	
<b>14:25</b>	<b>eRD1: Progress Report - Calorimeter Consortium</b>	<b>C. Woody, T. Horn, O. Tsai (40+10)</b>	
<b>15:15</b>	<b>Coffee Break</b>		
<b>15:40</b>	<b>eRD20: Progress Report - Computing</b>	<b>Markus Diefenthaler (20+10)</b>	
<b>16:10</b>	<b>LoI: Position Sensitive ZDC</b>	<b>Yuji Goto (15+10)</b>	
<b>16:35</b>	<b>LoI: Pulsed laser system for Compton polarimetry</b>	<b>Ciprian Gal (15+10)</b>	
<b>17:00</b>	<b>Open Discussion/Town Hall Meeting (~ 1h)</b>		
<b>19:00</b>	<b>Dinner and Discussions - Committee &amp; PIs/Speakers (Seminar Lounge in 510)</b>		

**Friday, January 31, 2020****08:00 Committee: Breakfast and Executive Session (Physics Department, bldg. 510, room 2-160)****Physics Department (bldg. 510), Large Seminar Room**

	<b>Title</b>	<b>Speaker</b>	<b>Slides</b>
<b>9:00</b>	<b>eRD24: Progress Report - Roman Pots</b>	<b>TBD (20+10)</b>	
<b>9:30</b>	<b>eRD17: Progress Report - Simulations</b>	<b>Mark Baker (20+10)</b>	
<b>10:00</b>	<b>eRD23: Progress Report - Streaming Readout</b>	<b>Jan Bernauer (20+10)</b>	
<b>10:30</b>	<b>Coffee Break</b>		
<b>10:55</b>	<b>eRD21: Progress Report - Background Studies</b>	<b>Charles Hyde (20+10)</b>	
<b>10:25</b>	<b>Committee Executive Session &amp; Working Lunch (Physics Department, bldg. 510, room 2-160)</b>		
<b>~14:00</b>	<b>Close-Out (Physics Department, bldg. 510, room 2-160)</b>		

# Logistics

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- BNL is currently without food service
  - ▶ You will need to go off-site for breakfast & lunches
  - ▶ We extended the lunch break to accommodate this.  
Please car pool and take care of those w/o car.
- Send talks to Alexander several hours before your talk (ayk@bnl.gov)
- If there are issues concerning the contracts please use your time here at BNL and see Liz Mogavero
- There will be no dedicated homework sessions. If there are questions please send the answers to me before noon on Friday

Looking forward to a successful meeting